

of the fluorine-based polymer is about 0.2% to about 0.5%.

#### **REMARKS/ARGUMENTS**

Claims 1-40 are pending in this application. Claims 8-20 are withdrawn from consideration. Claims 1-7 and 21-40 are rejected. In response to the rejection, claims 23 and 30 have been amended. The amendments are completely supported by the application as filed and thus they do not introduce any new matter. The Examiner is respectfully requested to reconsider and withdraw his rejection of claims 1-7 and 21-40, based upon the amended claims and arguments provided herein, so that they may proceed to issuance.

#### **Restriction Requirement**

The Examiner has issued a Restriction Requirement concerning this application under 35 U.S.C. §121 which requires applicants to elect between the following two groups of claims for continued prosecution in this application:

Group I: Claims 1-7 and 21-40, drawn to an article, classified in Class 428, Subclass 421.

Group II: Claims 8-20, drawn to a method, classified in Class 427, Subclass 372.2.

Applicants' representative made a provisional election (with traverse) of the invention of Group I, i.e., claims 1-7 and 21-40, during a telephone discussion with the Examiner on August 31, 2004. Applicants hereby affirm (with traverse) the provisional election of the Group I claims made on August 31, 2004. In light of the election of Group I, the Examiner has withdrawn claims 8-20 from consideration under 37 C.F.R. §1.142(b) as being drawn to a non-elected invention. Applicants reserve the right to file one or more divisional applications directed to the subject matter of the withdrawn claims.

#### **Claim Rejections Under 35 U.S.C. §112**

The Examiner has rejected claims 23-36 under 35 U.S.C. §112, first paragraph, for allegedly failing to comply with the so-called "enablement requirement". The Office Action notes that the rejected claims are directed to bearing components comprising a surface having an oil repelling agent thereon in which the oil repelling agent comprises a solvent. The Examiner points out, however, that the present specification appears to teach that bearing components are baked and dried after the application of the oil repelling agent - which would serve to drive off

the solvent (citing to p. 8, ¶35 and p. 9, ¶37) .

In response to this rejection, applicants have amended independent claims 23 and 30 to recite, respectively, a bearing component (claim 23) and a fluid dynamic pressure bearing component (claim 30), comprising a surface having an oil repelling film deposited thereon, i.e., formed by the driving off at least some of the solvent, which film is formed from an oil repelling agent comprising (1) coloring agent, (2) polymer and (3) solvent. Thus, an agent comprising a solvent is applied upon a bearing surface to form a film thereon, wherein the film is produced, *inter alia*, by driving off at least a portion of the solvent from the agent.

Applicants submit that the amendments made to claims 23 and 30 serve only to clarify the recitation of the invention in those claims. They do not reduce in any manner the scope of the invention. The amendments are completely supported by the application as filed. Thus they do not add any new matter to the claims. Applicants further contend that, as amended, claims 23 and 30 meet all of the requirements of 35 U.S.C. §112, first paragraph, in that the subject claims recite subject matter which was described in the specification in such a way as to enable one skilled in the art to make and/or use the invention recited therein. Claims 24-29 and 31-36 depend from claims 23 and 30, respectively, and include the entire recitation of those claims. The dependent claims are therefore believed to meet the requirements of §112, for the same reasons as claims 23 and 30. Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 23-36 under §112, ¶1.

#### **Interpretation Of Claim Language**

The Examiner stated, in ¶9 of the Office Action that, for the purpose of examination, the bearing components of claims 23-36 is taken to have a coating on the surface formed from a composition comprising (1) the coloring agent, (2) the polymer, and (3) a solvent, which solvent is then dried. Applicants acknowledge that the film formed on the bearing surface is formed by driving off (at least some) solvent from an oil repelling agent comprised of coloring agent, polymer and solvent. Applicants contend, however, that it is within the intended scope of their claims for the oil-repelling film on the bearing surface to have some amount of (residual) solvent still contained therein.

## **Claim Rejections Under 35 U.S.C. §102**

Claims 23-36 are rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Miura et al. (JP 2001-27242), hereinafter “Miura”.

The Examiner states that Miura discloses a dynamic pressure bearing device for use, e.g., in a hard disc drive, wherein an oil-repellant agent is applied to certain portions of the device, such as shafts and sleeves. The Examiner states further that, as disclosed by the reference, the oil-repellant agent comprises a fluorinated resin (corresponding to the fluorine-based polymer used in the present invention) in a solvent, and that the reference additionally teaches that a fluorescent agent (corresponding to the UV coloring agent used in the present invention) may be added to the oil-repellant agent.

It is a well-known precept of patent law that, for a reference to anticipate a claim, the reference must disclose each and every element of the invention recited in the claim. This is not the case with regard to applicants’ claims 23-36. In fact the Examiner acknowledges, in the second paragraph on page 5 of the Office Action, that “Miura et al. do not teach the concentration of the fluorescent agent or fluorinated resin in the oil-repellant agent composition.” Thus, by definition, the Miura reference can not anticipate applicants’ claims 23-36.

The Examiner attempts to overcome this lack of disclosure in the cited reference, however, by contending that, after applying the oil-repellant agent composition to the bearing device, the composition undergoes heat treatment, which will remove the solvent. Then, relying upon the above, the Examiner contends that the concentrations of UV agent and fluorine based polymer in the coating composition is based on the relative amount of solvent present in the composition and the concentrations in the resulting bearing device cannot be determined simply from the concentrations in the coating composition since the claims do not specify an amount of coating applied or other possible constituents in the coating composition. In summary, therefore, the Examiner’s argument is that (1) the reference does not disclose the concentration of the fluorescent agent or the fluorinated resin, but (2) this lack of disclosure is irrelevant to the claim because the claims recite a film on the bearing components, and the concentrations of the materials in the film are not (necessarily) the same as those in the solvent solution applied to

form the film.

In response, applicants submit that, as discussed in the section above dealing with the Examiner's rejection under §112, applicants have amended independent claims 23 and 30 to recite that the bearing surface has a film deposited thereon which is formed from an oil-repelling agent comprised of solvent, fluorine-based polymer and a UV coloring agent, wherein the UV coloring agent is present in an amount of from about 100 PPM to 400PPM. Thus, as now amended, the concentrations recited in applicants' claims relate to the amount of UV coloring agent contained in a solution which, upon application to the bearing surface, forms a film thereon. Amended claims 23 and 30, therefore, now recite a concentration of the UV coloring agent in the oil repelling agent used to form the film. This concentration, as admitted by the Examiner, is not disclosed by the Miura reference. Thus the Miura reference does not anticipate claim 23 or claim 30. Further, claims 24 and 31 recite the concentration of the fluorine based polymer in, respectively, the oil repellent agents recited in claims 23 and 30. These concentration values are also not disclosed, or even suggested, by Miura. Finally, claims 25-29 and 32-36, which depend, respectively, on claims 23 and 30, include all of the recitations of these independent claims. Thus, these claims are distinguishable over the Miura reference for the same reasons as claims 23-24 and 30-31.

The Examiner is thus respectfully requested to reconsider and withdraw the rejection of claims 23-36 under §102(b) over Miura.

### **Claim Rejections Under 35 U.S.C. §103**

Claims 1, 2, 5-7, 37 and 38 are rejected under 35 U.S.C. §103(a) as allegedly "obvious" to one of ordinary skill in the art over the Miura reference.

Claims 1 and 2 recite an oil repelling agent comprised of about 100 PPM to about 400 PPM of a UV coloring agent and a fluorine-based polymer. Further according to claims 5-7, the UV coloring agent may be a compound from the coumarin system (claim 5) and the agent may further comprise organic pigments (claim 6) or dyes (claim 7). Claims 37-38 recite a fluid repelling agent having the same composition as recited in claims 1 and 2, respectively.

Again, as in the case of the rejection under §102 discussed above, the Examiner acknowledges (see p. 6, last paragraph of the Office Action) that Miura does not teach the concentration of the fluorescent agent in the oil repelling agent composition. The Examiner notes, however, with regard to this lack of disclosure by the reference, that Miura does teach that the coloring agent is added to allow for visual recognition of the coating and the amount of coloring agent directly affects the degree of coloration of the product to be colored, i.e., the amount of a coloring agent is a results effective variable. The Examiner has, therefore, concluded that it would have been obvious to optimize the amount of fluorescent agent in the coating composition of Miura since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

What the Examiner fails to recognize, however, is that applicants did not choose the concentration range of the UV coloring agent recited in their claimed compositions for the purpose of optimizing the visual recognition of the coating. Rather, the concentration range was chosen for the purpose of reducing the outgas generated by the coating composition of the invention. As taught, for example, in Paragraph [0010] of applicants' specification, outgas may be generated, for example, by heat generated during operation of a hard disc drive, and by evaporation. Increased outgas adversely affects the reliability of the hard disc drive. Further, outgas may reduce the useful area of the magnetic disc and the density of the memory surface of the magnetic head. Applicants' success in reducing such outgas is clearly demonstrated in the Examples provided with the specification. See, in particular, Table 1 on page 13 and Table 2 on page 15 of the application.

In contrast with the present invention, the Miura reference displays no recognition of the problems inherent in the generation of excess outgas, nor that such outgas production should be reduced if not entirely eliminated. More particularly, the reference contains no disclosure which would teach or suggest to one skilled in this art that outgas producing the negative results described above (and in ¶10 of applicants' specification) could be significantly reduced by limiting the concentration of the UV coloring agent to 100-400 PPM, as recited, e.g., in claims 1 and 37. Thus, applicants' incorporation of a specific range of concentration of the UV coloring

agent is not a case of simply determining an optimum value of a result effective variable. Rather, it involves the discovery by applicants of the relationship between outgas production and UV coloring agent concentration, coupled with the recognition of concentration ranges best calculated to reduce (or eliminate) the problem of outgas production, which problem is not even recognized by the cited Miura reference.

For the reasons above, therefore, claims 1, 2, 5-7 and 37-38 are not obvious over the Miura reference and the Examiner is respectfully requested to reconsider and withdraw the rejections of the subject claims under §103 (a).

Further to the above, claims 1-7, 21-24, 27, 28, 30, 31, 34, 35 and 37-40 are rejected under 35 U.S.C. §103 (a) as allegedly “obvious” to one of ordinary skill in this art over the combination of U.S. Patent No. 6,582,130 to Yokouchi et al. (“Yokouchi”) and the Miura reference. The Office Action states that Yokouchi is directed to a bearing device comprising a rust preventative film formed from an oil repellent material. The rust preventative layer is formed by applying a rust preventative dissolved in a diluent, wherein the rust preventative material may be a fluorine substituted polymer. As recognized in the Office Action, the Yokouchi reference does not teach the addition of a UV coloring agent or an organic pigment to the rust preventative film.

In an attempt to remedy the deficiencies of the Yokouchi patent, the Examiner combined this reference with Miura. The Office Action notes that the subject reference is directed to fluorinated coatings applied to bearing devices, and teaches the incorporation of an organic dye or fluorescent agent into the coating to permit immediate visual recognition of coated parts. Based on this combination of references, the Examiner took the position that one skilled in the art would be motivated by Miura to add a fluorescent agent to the rust preventative coating of Yokouchi to provide a means for determining if a part has been coated. Additionally, the Examiner goes on to state that since the amount of the coloring agent directly affects the degree of coloration of the colored product, the amount of coloring agent is a results effective variable. Thus, the Examiner states that it would have been obvious to a skilled artisan to optimize the amount of fluorescent agent in the coating composition of Miura.

As applicants have pointed out above, however, in their discussion of the §103 rejection of claims 1,2, 5-7 and 37-38, the Examiner's argument is fundamentally flawed in that applicants' choice of their specific claimed concentration range for the UV coloring agent is not directed to optimizing the visual recognition of their oil repellent coating. Rather, the concentration range was chosen with regard to its ability to reduce the outgas generated by the coating composition of the invention. As discussed above, Paragraph [0010] of applicants' specification discusses this outgas in detail and describes its adverse effects. Moreover, applicants' success in reducing such outgas via the use of the compositions recited in the present claims is clearly established in the Examples provided in the present specification (see, e.g., Table 1 on page 13 and Table 2 on page 15). In summary, therefore, the concentration range of the UV coloring agent was chosen for, and is directly related to, its effect in reducing the amount of outgas produced, e.g., upon the operation of the coated bearing.

In contrast with the present invention, neither Yokouchi or Miura display any recognition of the problems inherent in the generation of excess outgas, nor that such outgas production should be reduced if not entirely eliminated. More particularly, neither reference contains any disclosure which would teach or suggest to one skilled in this art that outgas producing the negative results described, e.g., in Paragraph [0010] of applicants' specification could be significantly reduced by limiting the concentration of the UV coloring agent to 100-400 PPM as recited in the present claims. Applicants' incorporation of a specific range of concentration of the UV coloring agent is not a simple matter of determining an optimum value of a result effective variable. Rather, as pointed out above, it involves the discovery by applicants of the relationship between outgas production and UV coloring agent concentration, coupled with the recognition of concentration ranges best calculated to reduce or eliminate the problem of outgas production. This problem is not even recognized in either Yokouchi or Miura.

For the reasons above, claims 1-7, 21-24, 27, 28, 30, 31, 34, 35 and 37-40 are not obvious over either Yokouchi or Miura, whether taken alone or in combination and the Examiner is respectfully requested to reconsider and withdraw his rejection of the subject claims based on the cited combination of references.

**Summary**

Applicants submit that the amendments and arguments provided above completely distinguish the claims of their invention, as amended, over all of the cited prior art and that thus those claims are now in condition for allowance, early notice of which would be appreciated. If the Examiner believes that a personal or telephonic interview would advance the prosecution of this application, he is respectfully invited to telephone applicants' representative at the number provided below.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner of Patents and Trademarks, P.O. Box 1450, Alexandria, VA 22313-1450, on December 23, 2004.

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